

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



536 637

(43) International Publication Date
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number
WO 2004/053491 A1

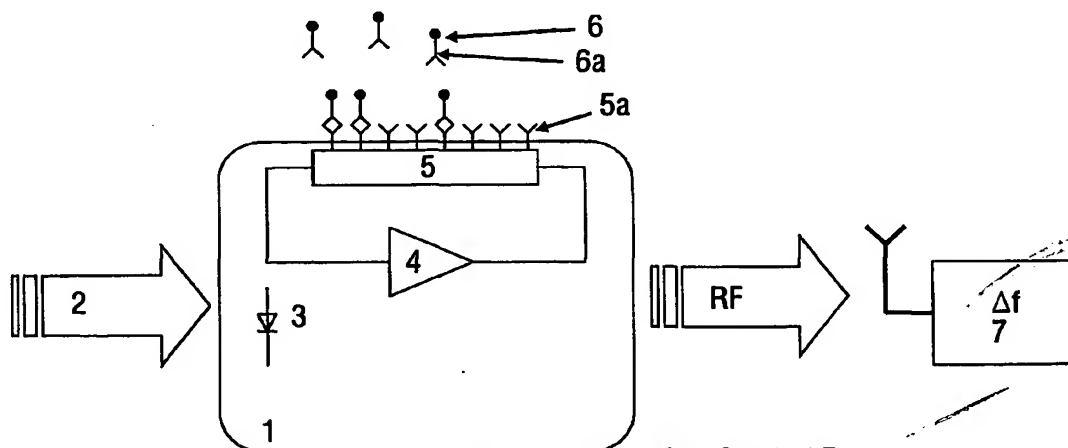
- (51) International Patent Classification⁷: G01N 33/543, 29/02, C12Q 1/68, G01N 27/02
- (21) International Application Number: PCT/IB2003/005786
- (22) International Filing Date: 8 December 2003 (08.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 02080173.4 9 December 2002 (09.12.2002) EP
- (71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KAHLMAN, Josephus, A., H., M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). PRINS, Menno, W., J. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN HOUTEN, Hendrik [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: SCHOUTEN, Marcus, M.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,

[Continued on next page]

(54) Title: BIOSENSOR WITH RF SIGNAL TRANSMISSION



A: ΔC , ΔL , ΔR
B: $\Delta mass$

(57) Abstract: A device (1) and method for measuring and or detecting the presence of biomolecules. The device comprises a resonance circuit arranged to operate and emit a resonance frequency (f). The resonance circuit comprises or is coupled to a sensor element (5) for detecting the binding of biomolecules (6a) to binding sites (5a). The binding of the biomolecules changes a physical property (R, L, C. mass) of the sensor element (5), which in it's turn, either directly when the sensor element forms part of the resonance circuit, or via a coupling of the sensor element to the resonance circuit, the resonance frequency. The change in the resonance frequency is detected. The device comprises a remote power transmission element, such as a photodiode or coil, for providing power to the resonance circuit using light or RF radiation respectively.

WO 2004/053491 A1